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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,380	03/03/2005	Eiji Yamamoto	Q86648	3834
23373	7590	11/01/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			BAUER, SCOTT ALLEN	
			ART UNIT	PAPER NUMBER
			2836	

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

BL

Office Action Summary	Application No.	Applicant(s)	
	10/526,380	YAMAMOTO ET AL.	
	Examiner	Art Unit	
	Scott Bauer	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 March 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/20/05 & 3/3/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. Figures 3, 4 & 5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: The word "nubber" in the first paragraph of the applicants disclosure should be changed to read --snubber--.

Appropriate correction is required.

Claim Objections

3. Claim 1 is objected to because of the following informalities: the following phrase is recited in such a way as to make the claim unclear and indefinite: “[E]ach of which is connected to a connecting portion of respective two of said twelve snubber diodes” (Claim 1 lines 7-9). Appropriate correction is required.

4. Claim 2 is objected to because of the following informalities: the phrase “and said connecting portion is a connecting portion of said anode and said cathode terminals” (Claim 2 lines 6-8) is unclear and indefinite because it fails to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Appropriate correction is required.

5. Claim 3 is objected to because of the following informalities: the phrase “wherein said six diode external terminals are configured to have same intervals” (Claim 3 lines 2 & 3) is unclear and indefinite because it fails to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Appropriate correction is required.

6. Claim 4 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim.

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See MPEP § 608.01(n). Claim 4 recites a “snubber module according to any one of claims 1 to 3”, however, Claim 3 is multiply dependant on Claims 1 or 2.

7. Claim 4 is further objected to because of the following informalities: the claim contains the phrase “*in which said six diode **terminal** terminals are connected*” (Claim 4 lines 12 & 13). It is suggested that the applicant remove the word “terminal” from the phrase.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1 & 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuji Electric Co., Ltd. (JP 2000-316285) in view of Kobayashi (US 5512782) and further in view of Miki et al. (US 5055990).

10. With regard to Claim 1, Fuji Electric Co., in Figure 27, teaches a snubber circuit with twelve snubber diodes (DR1 & DR2) connected to six terminals (R, S, T, U, V & W).

Fuji Electric Co. Ltd. does not teach providing a package for enclosing the snubber diodes and capacitors.

However, Kobayashi in, Figure 2, teaches a snubber module for suppressing a surge voltage (column 2 lines 35 & 36), comprising six snubber diodes (7) and snubber capacitors (11). Kobayashi, in Figure 1a, further teaches a package (1), which encloses the snubber diodes and capacitors, wherein external capacitor terminals (2 & 3) and external diode terminals (4) are exposed from the package. Kobayashi also teaches that the capacitor terminals are connected to the two leads of the capacitor (P & N) and that the external diode connections are connected to a connecting portion of each of the two diodes (U, V & W).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Fuji Electric Co. with Kobayashi by encasing the circuit of Fuji Electric Co., in the package as taught by Kobayashi for the purpose of incorporating the circuit taught by Fuji Electric Co. into a package that can be easily installed and replaced.

11. Kobayashi further does not teach that the package (1) is made of resin. Miki et al. teaches a snubber circuit with external terminals, and that the circuit is hermetically sealed in a synthetic resin mould (column 4 lines 23-27).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Fuji Electric Co. in view of Kobayashi with Miki et al. by using a resin mould for package (1) taught by Kobayashi, for the

purpose of creating a cheap, and durable insulating cover for protecting various circuit elements.

12. With regard to Claim 2, Fuji Electric Co. in view of Kobayashi and further in view of Miki et al. teaches the snubber module according to Claim 1.

Fuji Electric Co., in Figure 27, further teaches a snubber circuit, configured by six sets of serial diodes (DR1 & DR2) each of which is configured by two snubber diodes, an anode terminal of one of the snubber diodes being connected to a cathode terminal of another one of the snubber diodes and that the connecting portion (R, S, T, U, V, W) is attached to the anode and cathode terminals. Fuji Electric Co. also teaches a snubber capacitor with one terminal connected commonly to anode terminals of the serial diodes on a side that is not connected to the connecting portion, and another terminal is connected commonly to cathode terminals of the serial diodes on a side that is not connected to the connecting portion.

13. Claims 3 & 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi (5512782) in view of Fuji Electric Co., Ltd. (JP 2000-316285) and further in view of Miki et al. (US 5055990) and Hitachi (JP 8-251908).

14. With regard to Claim 3, Fuji Electric Co., Ltd. in view of Kobayashi and further in view of Miki et al. teaches the snubber module according to Claim 1.

Fuji Electric Co., Ltd. in view of Kobayashi. and further in view of Miki et al., does not teach that the external terminals of the snubber module are configured to match up with input and output terminals of a semiconductor switch module which can bi-directionally supply a power between three terminals.

Hitachi, in Figure 5, teaches a snubber module (601) with external terminals configured to mate with the external terminals of a semiconductor switch module (83) containing IGBT's.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Fuji Electric Co., Ltd. in view of Kobayashi and further in view of Miki et al. with Hitachi by incorporating the three snubber modules taught by Hitachi into one single snubber module that will mate with the switch for the purpose of saving cost and space and to reduce the time required to install the modules.

15. With regard to Claim 4, Kobayashi in view of Fuji Electric Co., Ltd. and further in view of Miki et al. teaches the snubber module according to Claim 1.

Fuji Electric Co., in Figure 27, further discloses a power conversion apparatus, configured by a semiconductor switching module comprising eighteen semiconductor switching devices (S_nP & S_nN) in which two of the eighteen semiconductor switching devices are connected in anti-parallel to constitute one bidirectional switch (S_O), thereby constituting nine bidirectional switches (S_1-S_9) and three bidirectional switch groups

(10H, 20H, & 30H) are connected to input terminals an output terminals (R, S, T, U, V & W).

16. Hitachi in Figure 4, further teaches that the snubber module external diode terminals (W, N & P) are connected to the input and output terminals of the semiconductor switch module (83).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Bauer whose telephone number is 571-272-5986. The examiner can normally be reached on M-F 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571-272-2058. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAB



**PHUONG T. VU
PRIMARY EXAMINER**